

Life science research: opportunities and risks for public health

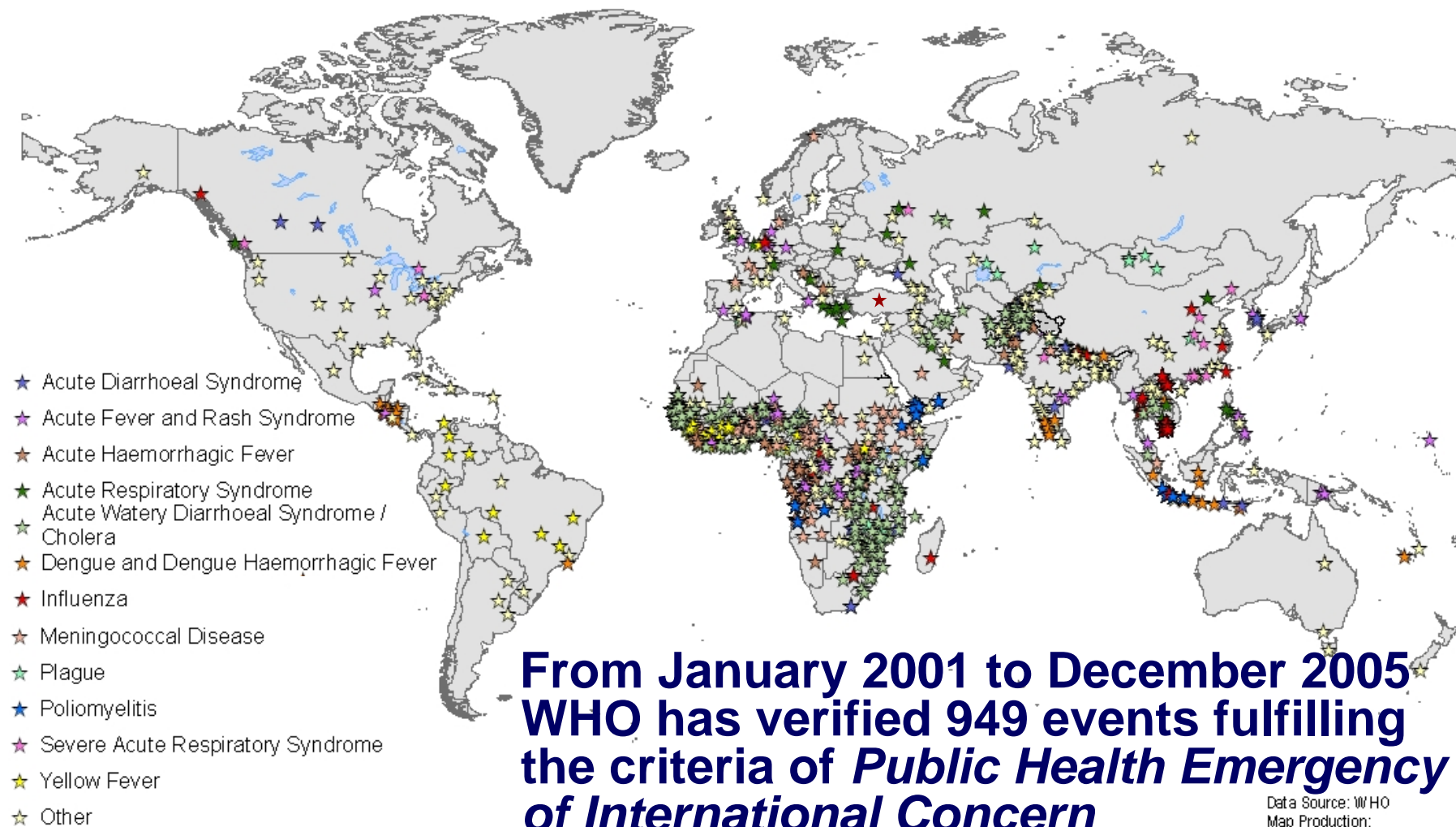
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World Health Organization



Actions Taken on Events



**From January 2001 to December 2005
WHO has verified 949 events fulfilling
the criteria of *Public Health Emergency
of International Concern***



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

Data Source: WHO
Map Production:
Public Health Mapping and GIS
Communicable Diseases
World Health Organization
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Laboratory Accidents and Bio-Risks

- **SARS: Singapore, 2003**
- **SARS: Taiwan, 2003**
- **SARS: China, 2004**
- **Tularaemia: USA, 2004**
- **Ebola: Russia, 2004**



Bio-Risks from deliberate use

- *Low probability, high consequence*
- *New technology*
biotechnology and genetic engineering



Bio-Risk Reduction



Bio-Risk Reduction



Outbreak alert and response operations



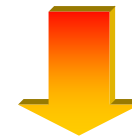
**Epidemic
Intelligence**



**Epidemiological
Verification**



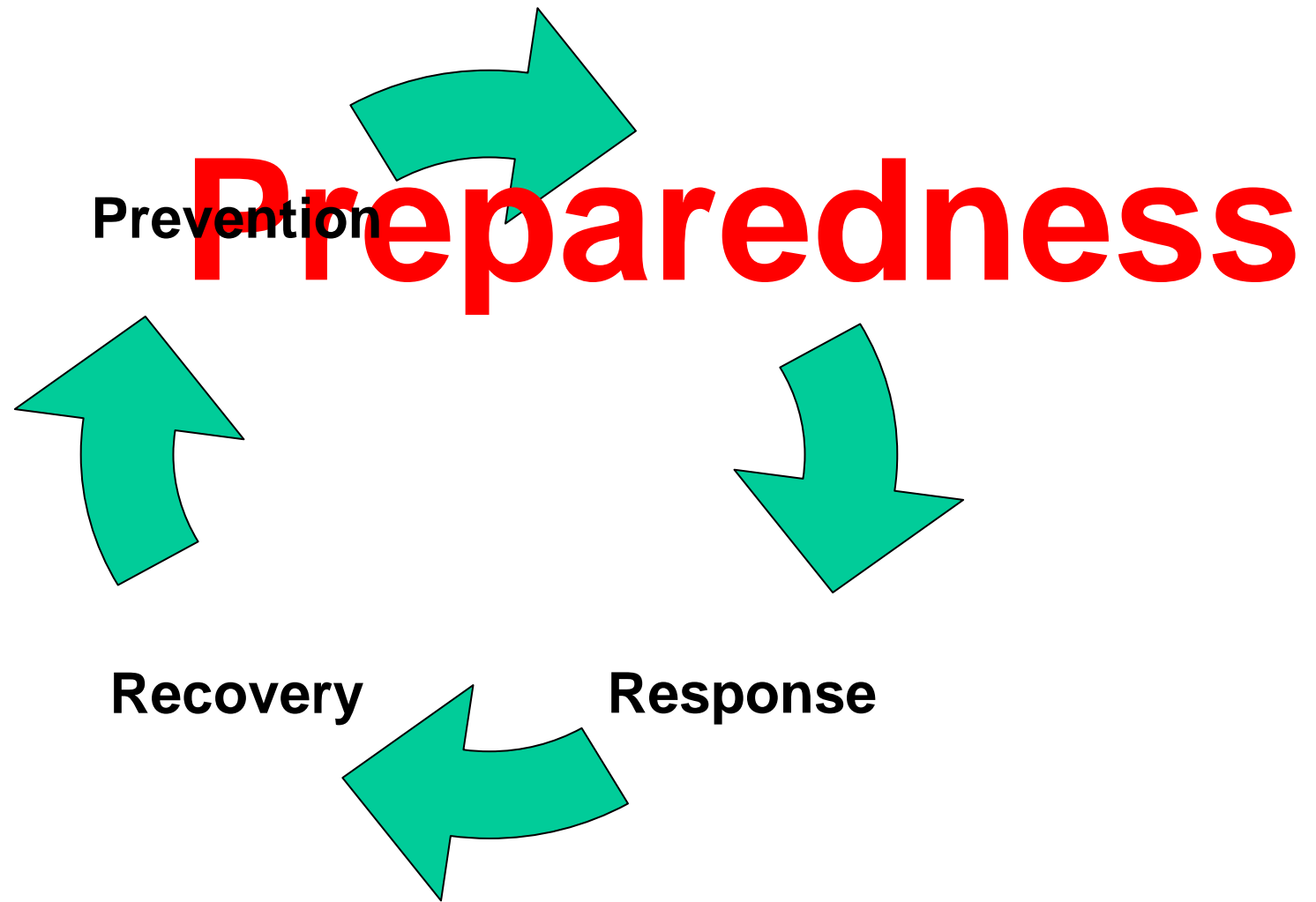
**Public Health
Response**

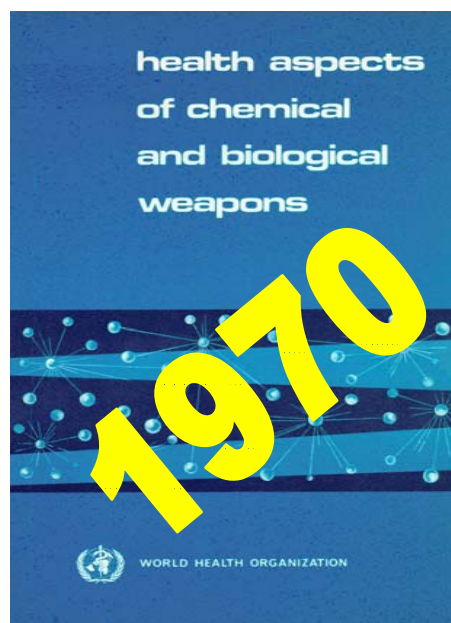


Follow-up

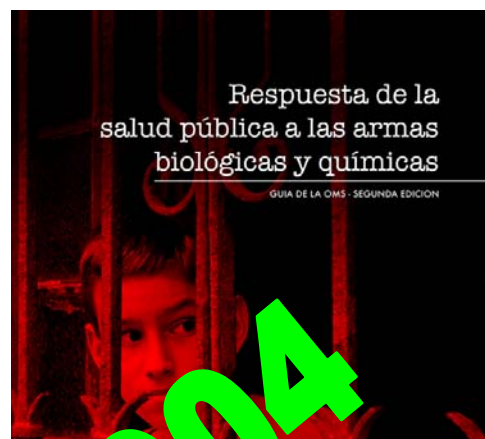


Bio-Risk Reduction





Guidance for public health preparedness



Managing the health risks of the deliberate use of biological and chemical agents or radioactive material:
Guidance on capacity assessment
being finalized



Global Laboratory Networks Directory

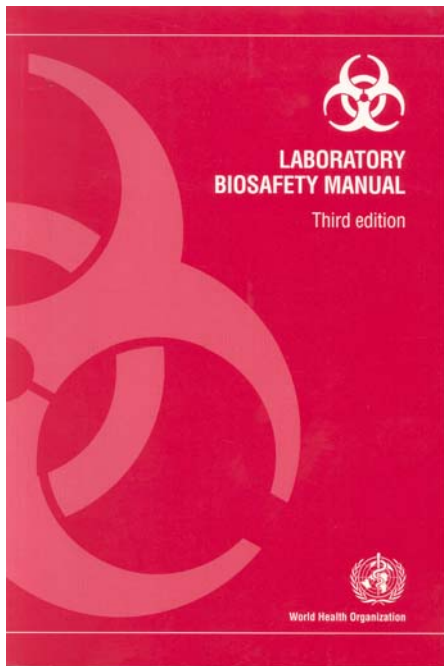
- Identify
- Know your neighbour
 - Collaboration
 - Capacity building

encourage working together and developing surge capacity

Bio-Risk Reduction



WHO Biosafety Activities



- *Laboratory Biosafety Manual, 3rd Edition (2004)*
- *Laboratory Biosecurity Guidelines (being finalized)*
- **Coordination of global biosafety networks**
 - WHO Biosafety Advisory Group (BAG)
- **UN Model Regulations**
 - Transport of infectious substances
- **Visits to the smallpox repositories laboratories**

The implications of life science R&D for global health security

The importance of a public health perspective

- Life science R&D can have both **benefits and risks** for public health.
- **Control mechanisms** for managing the risks could **hinder further development**.
- Strong **public confidence** must be maintained in science, and **scientific advice for policymaking** must be supported.
- The levels of **information and experience vary among WHO Member States**.

WHO Statements on *Health–Science–Security*

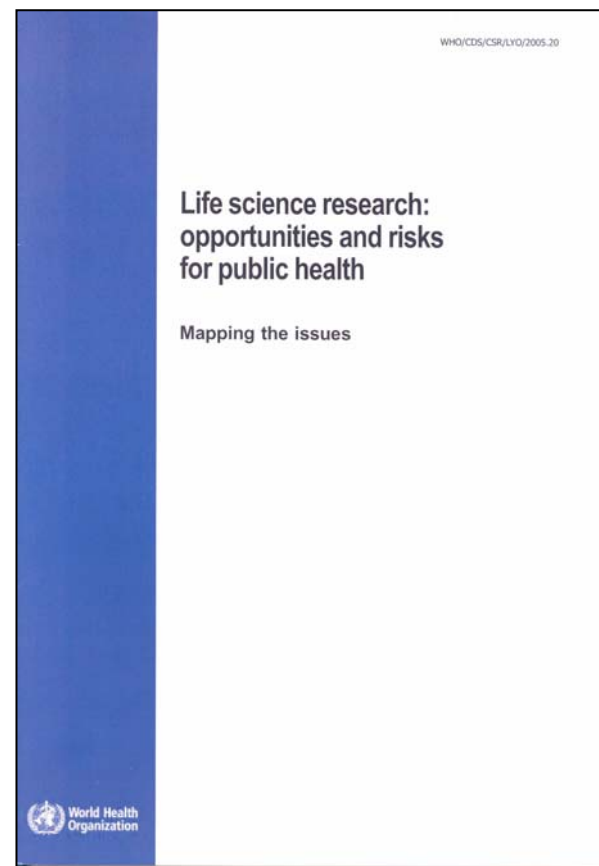
- **World Health Assembly resolution WHA20.54 (1967)**
“scientific achievements, and particularly in the field of biology and medicine – that most humane science – should be used only for mankind’s benefit, but never to do it any harm”
- **Genomics and World Health (2002). Report of the advisory committee on health research.**
“The potential misuse of genomics for the purposes of biowarfare is of particular importance”.
The biomedical research community should take *“a much more proactive role in controlling the hazards associated with the misuse of genomics for biowarfare”* as well as to examine *“the risk–benefit ratios of some of its current genetic engineering procedures”* and the adequate containment and monitoring of its work.
- **World Health Assembly resolution 55.16 (2002)**
“Global public health response to natural occurrence, accidental release or deliberate use of biological and chemical agents or radionuclear material that affect health”



The implications of life science R&D for global health security

Phase 1 completed in 2005*

- Background paper "Mapping the issues" (available on the web)
- International network of individuals and institutions
- In-house network:
 - Epidemic and Pandemic Alert and Response
 - Ethics, Trade, Human Rights and Health Law
 - Research Policy & Cooperation: *Advisory Committee on Health Research (ACHR)*
 - Special Programme for Research and Training in Tropical Diseases



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The implications of life science R&D for global health security

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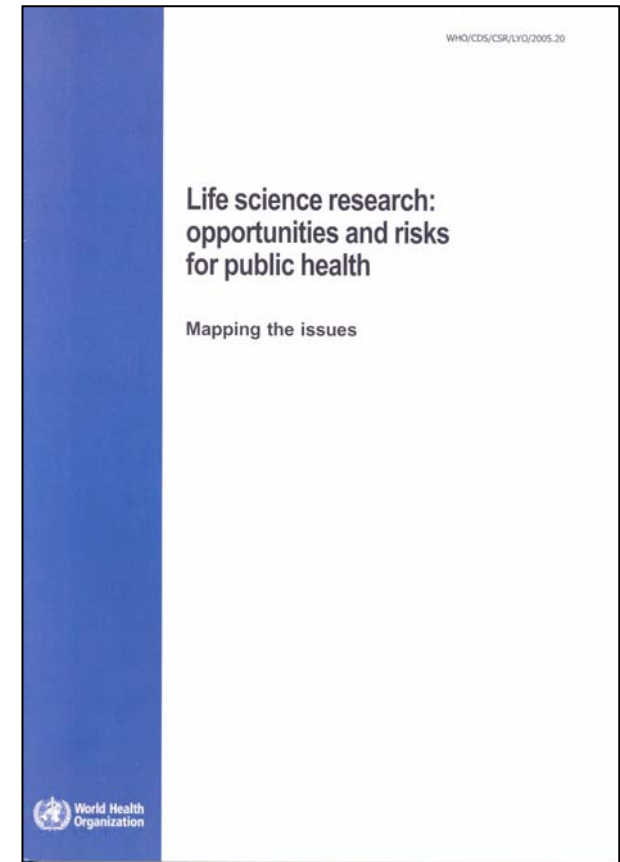
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The risks for the public health community

- **Poorly designed controls would slow down the production of knowledge** that is beneficial for human health and welfare.
- **"Over-regulation"** could stifle research and the opportunities for developing countermeasures, or be expensive to implement and **reduce the attractiveness** of certain areas of medicine.
- **Tightening control** (vetting publications, classifying research results) might **affect the conduct of life science research**, distort the fundamental mechanisms of disseminating scientific knowledge and endanger both the quality and quantity of research being done on public health issues and development of new medical products.



Questions and challenges

- Are the current measures adequate to manage risks **OR** are new measures needed?
- Would rules and regulations be able to manage risks without impairing benefits of R&D?
- Is it realistic to expect consistency among the wide array of control measures suggested?



Public health community should be aware of and actively participate in these discussions

